इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”
Mazdoor Kisan Shakti Sangathan
“The Right to Information, The Right to Live”

“पुराने को छोड नये के तरफ”
Jawaharlal Nehru
“Step Out From the Old to the New”

IS 12671 (1989): Hides and Skins, Fresh or Cured - Glossary of Defects [CHD 17: Leather, Tanning Materials and Allied Products]

“ज्ञान से एक नये भारत का निर्माण”
Satyanarayan Gangaram Pitroda
“Invent a New India Using Knowledge”

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”
Bhartṛhari—Nītiśatakam
“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS 12671 : 1989
(Reaffirmed 2009)

Indian Standard

HIDES AND SKINS, FRESH OR CURED — GLOSSARY OF DEFECTS

भारतीय मानक

ताजा अथवा संसाधित खालों में दोषों सम्बन्धी पारिभाषिक शब्दावली

UDC 675.03.004.64 : 001.4

© BIS 1989

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1989 **Price Group 3**

AMENDMENT NO. 1 MAY 1998
TO
IS 12671 : 1989 HIDES AND SKINS, FRESH OR CURED — GLOSSARY OF DEFECTS

(*Page* 1, *clause* **2.1.2**, *lines* 6 *and* 8) — Substitute 'cattle' *for* 'catties'

[*Page* 1, *clause* **2.2.1**(a), *line* 2] — Substitute *'follicular' for 'follcular'*.

[*Page* 2, *clause* **2.2.1**(d), *line* 10] — Substitute 'depression' *for* 'depressing'.

[*Page* 2, *clause* **2.2.1**(e), *line* 7] — Substitute 'criss-cross' *for* 'cris-cross'.

[*Page* 2, *clause* **2.2.2**(b), *line* 4] — Substitute'rubbery' *for* 'robbery'.

[*Page* 2, *clause* **2.2.3**(a), *line* 6] — Substitute 'hydrolyse' *for* 'hydrolyze'.

[*Page* 3, *clause* **2.2.6**(a), *line* 2] — Substitute 'grain' *for* 'arain'.

[*Page* 3, *clause* **2.2.6**(b), *line* 13] — Substitute 'of fats into' *for* 'of fats of'.

(*Page* 3, *clause* **2.3**(d), *line* 1] — Substitute 'faulty' *for* 'falty'.

[*Page* 3, *clause* **2.3**(m), *line* 1] — Substitute 'neck' *for* 'shoulder'.

(Page 4, *clause* **3.5**, *line* 3) — Insert '/beak' after the word 'claws'.

(C HD 017)

Reprography Unit, BIS, New Delhi, India

Leather Sectional Committee, CDC 16

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 31 March 1989, after the draft finalized by the Leather Sectional Committee had been approved by the Chemical Division Council.

Raw hides and skins are affected in quality due to various defects that might have occurred in the living animals, in fallen animals, during flaying, preservation and storage, and during transportation. The terminology used to define these defects vary appreciably in various countries and even in different states of India. This glossary enlists the common terms used to describe the defects and to provide short descriptions for them. These defects might occur in fresh or in salted hides and skins.

The major defects, prevalent in fresh or cured Indian raw hides and skins, have been divided into four groups in this glossary:

a) Defects occurring in living animals

   These defects may be :

   1) due to inherent conditions,
   2) caused by animal disease and their after effects, or
   3) caused by mechanical damages,

b) Defects in fallen animals,
c) Flaying defects, and
d) Curing and preservation defects.

This standard is intended chiefly to cover the technical definitions/explanations of defects and it may not necessarily include all the legal implications pertaining to the defects.

Indian Standard

HIDES AND SKINS, FRESH OR CURED — GLOSSARY OF DEFECTS

1 SCOPE

1.1 This standard provides explanation for the defects in fresh or cured hides and skins.

2 DEFECTS OCCURRING IN LIVING ANIMALS

2.1 Due to Inherent Conditions

Certain inherent conditions may influence the skin and the leather quality.

2.1.1 *Influence of Animal Breed*

a) *Grain quality and substance*

Depending on the animal breed a cattle hide may be coarse grained and thick or finer grained and thin. The spready hides are thin, loose textured and have surface areas larger in proportion to their weight. In case of sheep, merino sheep skins are thin, have pinholed grains and possess rib marks and are unsuitable for quality leather. Best leathers are produced from hair-sheep skins which are fine grained and have good substance. Depending on the animal breed, goat skins may vary in size, weight, thickness and grain characteristics. Some goat skins are, however, spready, open grained and have poor substance.

b) *Hump*

Hides from certain breeds of cattle do not produce good hide pattern due to the hump present between their soldiers.

c) *Open grain* (*Pinholes*)

This is a defect naturally occurring in fine wooled merino sheep skins. Dewooling of sheep produces small pinholes in the skins.

d) *Rib marks*

Ribs are common to fine-wooled sheep skins. This defect is caused probably due to the weight of the wool pulling the structure of the corium out of the normal pattern. Ribs may be of two types, namely, (i) blind ribs, and (ii) lap ribs. Lap ribs are readily visible in all parts of the skin usually running in parallel ridges from the backbone line.

2.1.2 *Influence of Age and Sex of the Animal*

a) It is well recognized that skins/hides of young animals produce the best leathers. In most of the countries animals are slaughtered at young **age** but in India, cattle hides are generally obtained from fallen animals. In few states, however, catties are permitted to be slaughtered at an old age of about 8 to 10 years. The hides of such catties are poor in substances, loose in texture and always suffer from various animal diseases, mechanical damages, etc.

As regards sex, it is generally believed that female skins have finer grain and produce leather of greater tensile strength.

b) *Wrinkle marks*

These are also growth marks caused by old age/undernourishment of the animal and adversely affect grain surface of leather.

2.1.3 *Influence of Diet*

Poor nutrition not only affects the growth of the animal but also the hide/skin produced is smaller, thinner and of poor substance. But artificial fattening or other modern methods of feeding greatly increases the fat content of hides/skins resulting in loose open structured leather lacking in firmness On the other hand, hides/skins from underfed animals have finer grain and less fat deposition in the corium.

2.2 Defects Caused by Animal Diseases

Various animal diseases produced by different biological agents, that is, parasites, virus, bacteria, fungi and helminths are responsible for considerable deterioration in hide and skin quality.

2.2.1 *Parasitic Diseases*

a) *Demodectic mange*

Goat skins and cattle hides are greatly affected by demodectic mange (*Follular mange*) mites. Both the grain and flesh sides of goat skin are affected. These mites may appear in : (i) nodular, (ii) squamous, and (iii) acute forms. The mite occurring in cattle is known as *Demodex bovis* and in goat as *Demodex caprae.* Indian goat skins are greatly affected by demodectic mange mites.

b) *Healed warble hole*

In due course warble holes get healed up leaving scar marks. Healed warble is also responsible for the devaluation of raw hides/skins.

c) *Lice*

Because of the irritation caused by the biting or sucking type of lice, the animals scratch the affected parts of the body which leads to wounds and bruises. Lice species belonging to the genera *Linognathus* are common to cattle, goat and sheep but in cattle, species of other genera are also found.

d) *Psoroptic mange*

Psoroptes ovis is responsible for the disease 'Sheep-scab' in both woolly and hairy sheep skins. 'Sheep-scab' affects the quality of wool as well as the grain side of the skin. 'Rainy season defect' in goat is caused by *Psoroptes caprae.* It is a seasonal defect and appears during the rainy season. The lesions appear as small, hard, pustular nodes and are covered by long hair. After liming, the nodes are removed leaving a depressing on the grain particularly on both sides of backbone. In finished leather, the defect appears on the grain as innumerable pin prick marks on both sides of the backbone. In northern India, the defect is known as *'BARSATI'* or *'DANA'* and in South as *'MALAIADI'* or *'POURI POURI'.*

e) *Sarcoptic mange*

Sarcoptic mange (*Sarcoptes scabiei)* mites burrow into the substance of the skin of goat and sheep causing galleries. Marked thickening and wrinkling of the skin takes place associated with the formation of scab as well as bald patches. Grain surface of the leather becomes rough showing cris-cross tunnels.

f) *Tick marks*

Ticks affect hide/skin quality to a considerable extent. Ticks responsible for tick damage though belong to various genera like *Ixodus, Haemophysalis, Dermacentor, Hyalomma, Boophilus* and *Rhipicephalus,* the most common live-stock ticks responsible for damages in cattle hides and sheep and goat skins belong to the general *Hyalomma* and *Boophilus.* They leave scar mark on the grain side of the finished leather.

g) *Warble hole*

The most serious defect referred to in the leather trade is 'grub damage' or damage due to warbles. The larvae of *Hypoderma bovis. Hypoderma lineatum* and *Hypoderma crossi* make few to many holes on cattle hide confined to the butt and back areas of the hide. *Hypoderma crossi* is known to cause damage to goat skins. Extent of damage caused by warbles may be severe.

2.2.2 *Viral Diseases*

a) *Bobble*

This is considered to be a viral disease prevalent in sheep skins. In raw skin, the lesions are generally visible on the flesh side as round spots but after unhairing, they become more prominent on the grain side. Bobble lesions have permanent stains on both the chrome and vegetable tanned leathers and render them unsuitable for quality leathers.

b) *Dermatitis*

Dermatitis is a virus disease characterized by the appearance on the hair side all over the skin of circular mushroom shaped elevated nodules robbery in consistency and on the flesh side as slightly depressed circular spots. Both goat and sheep skins are affected by dermatitis. Finished leathers are found to be severely damaged due to the presence of the flattened nodules having tunnel like depressions around them and sometimes leaving round holes due to the removal of the scab during processing.

c) *Other virus diseases*

Other viral diseases like 'rinderprest', 'tumors' and 'foot-and-mouth disease' may also affect hide/ skin quality but their incidence is rather insignificant.

d) *Pox*

The defect known in the trade as 'pock marks' is caused by pox viruses (*Variola viruses)* and occurs both in hides and skins. Pox lesions leave permanent scar mark on the grain side of the leather. The extent of damage is comparatively severe in sheep skins.

2.2.3 *Bacterial Diseases*

a) *Abscess*

Cutaneous abscesses, formed by the pyogenic organisms of different genera *(Staphylococcus, Streptococcus, Pseudomonas,* etc., isolated from abscesses in goat and sheep skins) affect either the grain or flesh side of the leathers or even hydrolyze skin proteins leading to perforations.

b) *Other bacterial diseases*

Hides and skins affected by other bacterial diseases, namely, sycosis, anthrax, tuberculosis, mycotic dermatitis, etc, are rare.

2.2.4 *Fungal Diseases*

a) *Eczema*

Eczema, another fungal disease is, however, confined to face, lips, ears and vulval areas and do not materially degrade skin quality.

b) *Ring-worm*

This disease is caused by fungal species of two genera *Microsporum* and *Trichophyton* mostly in cattle and goat The lesions appear as raised round, crust patches having a diameter of one inch. The incidence of ring-worm affected hide/ skin is insignificant.

2.2.5 *Helminthic Diseases*

a) *Hump sore*

The disease in cattle caused by nematode *Stephanofilaria assamensis* and results in the formation of scab and crusts, hair loosening and thickening of the hide. The lesion spreads in the hump region. This defect is prevalent in eastern States of India and in Andaman and Nicobar Islands.

b) *Summer sore*

This defect is caused by another nematode *Parafilaria bovicola.* The nodules formed are distributed on both sides of the neck, withers, etc. Bleeding takes place from the affected areas. This disease appears during summer months and disappears in the cold weather.

2.2.6 *Other Diseases*

a) *Hyperpigmentation*

Black hair female sheep skins are found to be affected on the arain on both sides of the backbone (particularly in the butt area) due to hyperpigmentation. Hair loosening may be noted in the affected areas. Physical properties of leathers in the affected area are poor associated with grain erosion and sometimes resulting in perforation.

b) *White spots*

Often finished leathers are degraded in quality by a defect referred to in the trade as 'white spots'. Dyed and finished leathers, particularly suede leathers, exhibit small whitish spots lighter in shade compared to the rest of the leather. Investigations on this defect have revealed that certain parasitic diseases, such as, ticks, demodectic mange, etc, are responsible for this defect. The lesion affected areas of hide/skin undergo certain structural changes which might affect their capacity of dye retention. The fine white spot or white bloom on the hide surface may also be formed due to break down of fats of fatty acids by attack of certain mold species. This may result in uneven dying in the subsequent processing.

2.3 Mechanical and Other Damages

a) *Brand mark*

Indian cattle hides may sometimes be affected by brand mark which are meant for identification. Brand marks may be of two types, namely, (1) stamp brand in which a designed red hot iron object is used, and (2) running brand in which the person draws the design with a hot iron object. Various other types of branding are being followed in advanced countries.

b) *Bruises*

Bruises are injuries on the hip and shoulder areas of the hide and to a lesser extent on the bends, back, sides and shanks.

c) *Caused by dung and urine*

Cattle hides may be erroded on the grain side due to continued soiling by dung and urine.

d) *Faulty shearing*

Scar may be produced on sheep skin due to falty shearing.

e) *Fire mark*

Indian goat and sheep skins are considerably deteriorated in quality due to fire-mark. This is a man made defect. Firing mark is generally inflicted in different parts of the body with a view to cure some ailments In raw skin, the defect is readily seen on the flesh sides.

f) *Goad mark*

Cattle hides are affected in quality due to the cruel use of goading sticks. Patches containing innumerable pin holes are found on the butt of many hides.

g) *Grass seed infestation*

Prickly seeds and prickles from certain plants and grasses may cause defect in sheep skins. These penetrated seeds stick to the skin even after finishing into leather.

h) *Horn rakes*

Damage to the grain caused by the horn of the animals during fighting.

j) *Scratches*

Grain side of hides and skins may get scratches by thorn hedge, burbed wire and by other external agents.

k) *Rub marks*

These are found on the top of the hind legs and are caused by the rubbing of the hide against hard ground or floor.

m) *Yoke mark*

This is a patch of hardened skin on the shoulder caused by the pressure and rubbing of the hide against the yoke.

3 DEFECTS IN FALLEN ANIMALS

These defects are typical for Indian cattle hides as majority of the cattle hides are obtained from fallen animals.

3.1 Abrasion

Cattle hides of fallen animals are often damaged on the grain due to abrasion during dragging, lifting and handling of the carcasses.

3.2 Blood Patches

Fallen buffalo hides often show blood patches or distinct marks due to coagulation of blood in the vessels immediately under the grain which become prominent after liming. Poor bleeding in fallen animals may also cause a veiny condition.

3.3 Hard Spots

The localized drying on one side of the carcass exposed to the hot mid-day sun causes uneven condition in wet salting and is not rehydrated back properly during beamhouse operations.

3.4 Poor Substance

The hides obtained from animals which are allowed to die a natural death in *'PINJRAPOLE'* or elsewhere are thin, spongy and having poor substance besides being deteriorated in quality due to animal diseases. Some of the hides may be paperish and thin all over.

3.5 Vulture Marks

Fallen cattle are often lying on the field. Vulture prey upon the carcass puncturing the hide with their sharp claws.

4. FLAYING DEFECTS

The following defects may occur during flaying of the hides and skins and subsequent trimming.

4.1 Corduroy

A series of shallow and parallel scores made by the flaying knife.

4.2 Cut Throat

A large incision mark is made perpendicular to the throat during slaughtering of Indian cattle hides. Because of this, the entire hide can not be fully utilized as the head area is to be trimmed out to avoid processing difficulties.

4.3 Excess Flesh

Hides obtained from fallen animals contain excess flesh and adipose tissue layer.

4.4 Gauge

Due to careless flaying or to cover the flaying cuts, a thin layer of hide substance may be removed making the hide/skin thinner in the affected area.

4.5 Grain Burst

Tearing of the hair side of the hide/skin during flaying.

4.6 Grain Crack

Bursting of the grain layer of hide/skin due to the use of certain tools and by excessive stretching of the skin during flaying.

4.7 Hole

A complete perforation of the hide/skin leading to small to big holes caused by careless or hurried flaying.

4.8 Poor Pattern

The symmetry of the hide on both sides of the backbone adds to its value. Depending on the ripping cuts in the belly and in the legs, the shape of the hide/skin may be non-uniform and bad looking and the final trimmed area of leather may be reduced.

4.9 Scores

A deep cut mark produced by careless handling of dermis during flaying without making any perforation of the hide/skin.

5 CURING, STORAGE AND TRANSPORTATION DEFECTS

Quality of raw hides and skins may also be degraded due to certain defects occurring during curing, storage and transportation.

5.1 Grain Crack

When hides/skins are sun dried, they may produce grain crack during folding.

5.2 Grain Damage

If the hides and skins are allowed to stale, bacteria penetrate inside them and with time damage the grain side of the hide/skin referred to as grain-slip or grain-peeling. Such damages appear prominently after liming as localized spots or as irregular patches.

5.3 Grease Defect

The grain of leather from woolly sheep skin may sometimes be wrinkled on the back area due to the breakdown of the fats. The breakdown products may bring about some sort of tanning action.

5.4 Hair-Slip

A raw hide/skin may show hair-slip due to bacterial action if it is not cured in time and also during storage in wet salted condition due to the autolytic enzymatic action. Signs of hair-slip indicate the beginning of microbial or autolytic enzymatic action on skin.

5.5 Heatirg in Pile

Wet salted hides and skins stored in large piles may be heated due to rise in temperature inside the pile. Due to elevated temperature, the autolytic enzymes as well as the micro-organisms may be more active and may cause hair-slip which is the early signal of putrefactive changes.

5.6 Insect Damage

Hide beetals, like *Dermestes maculatus* and moths, such as, *Tinea* may cause considerable damage to dry hides/skins during storage. Initially the hair, wool, and subsequently the grain and finally the corium is eaten away by the insects leading to perforations.

5.7 Metallic Stains

Iron produces stains in hides and skins. Iron may be contaminated from different sources. Besides iron, copper, lead and tin may also produce stains.

5.8 Pitting of the Grain

Bigger salt crystals may cause pits on hides due to the pressure of a pack when the hides are kept in piles. These depressions persist in the finished leather. This defect is also known as salt-pits.

5.9 Red Coloration/Red Heat

Flesh side of salted hides/skins shows red or pink coloured spots or patches particularly at the edges due to the growth of certain chromogenic halophilic bacteria. The organisms do not penetrate deep into the hides/skins and they can be washed out or completely removed after liming. Appearance of red coloration devalues the raw hides/skins.

5.10 Salt Stain

This defect develops on wet salted hides and skins on the flesh, grain or in the middle of the corium. Curing salt containing calcium, mostly as calcium sulphate, is responsible for salt stain.

5.11 Salt Stippen

The defect appears as star like crystals raised on the grain surface. This defect is caused by the common curing salt containing magnesium salt as impurity.

5.12 Sun Blisters

Flint dried hides may produce sun blisters due to rapid drying of the surfaces which results in holes or causes hide separation as becomes apparent after liming.

5.13 Transportation Damages

During transit either by railway wagons, or by lorries, or bullock-carts, hides and skins may be affected in quality due to certain factors. During summer months, wet salted hides/skins transported by iron wagon get heated up and are subjected to microbial deterioration in the form of hair-slip, red-coloration and grain damage as mentioned earlier. During transportation by lorries hides/skin may be mechanically damaged if proper care is not taken in handling. The exposure of hides/skins to excess heat for a considerable period may result in dehydration of the wet salted stock.

5.14 Veinyness

Vein like protuberances which occur in finished leather is known as veiny leather. The real cause of veinyness is not certainly known. It is generally recognized that improper bleeding of the animal, delay in cure, inadequate cure, undersoaking, etc., might be responsible for veinyness.

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Revision of Indian Standards

Indian Standards are reviewed periodically and revised, when necessary and amendments, if any, are issued from time to time. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition. Comments on this Indian Standard may be sent to BIS giving the following reference:

Doc : No. CDC 16 (9260)

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices:	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	331 01 31 331 13 75
Eastern : 1/14 C. I. T. Scheme VII M. V. I. P. Road, Maniktola CALCUTTA 700054	36 24 99
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	2 18 43 3 16 41
Southern : C. I. T. Campus, IV Cross Road, MADRAS 600113	41 24 42 41 25 19 41 29 16
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) BOMBAY 400093	6 32 92 95

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR.
GUWAHATI. HYDERABAD. JAIPUR. KANPUR. PATNA.
TRIVANDRUM.

Printed at Saini Printers, Delhi, India